

Coal-fired China: Rethink the Precautionary Principle

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The international environmental issues such as the ozone depletion and climate change have given us lessons that our current activities might have long term impacts to our environment. The multi-boundary environmental problems have increased quickly in recent years, and because of its complexity, the calls for international cooperation appear urgently. As a result, the international environmental law has developed since 1970s under the need to seek the most possible international cooperation. One of the most controversial and broadly discussed principles is the precautionary principle. It states that if an action or policy has a suspected risk of causing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is not harmful falls on those taking the action. The value of this principle is to ensure the environmental justice would be carried out and taken into account in a policy-making process concerning the harm that may have occurred.

Though the explanation and exact wording are slightly different in international treaties, the precautionary principle addresses how environmental decisions are made in the face of scientific uncertainty. The principle is concerned with taking anticipatory actions to avoid environmental harm *before* it occurs¹. Principle 15 of the *1992 Rio Declaration* is the most widely accepted elaboration of the precautionary principle:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The principle speaks of “when” policy measures can be taken and on what basis, but it did not specify to “what” type of measures should be taken. The principle only illustrates that such measures should be “cost-effective” when there are “threats of serious or irreversible damage.” However, it was criticized because it “leads to nowhere².” On the other hand, people endorsing the idea defend that the precautionary principle should be applied and shift the burden to those taking action as it is the only way to prevent the irreversible harm. The dispute lasts until today and is even more intense because of conflicts of interest among different countries. Particularly, speaking of the duty to reduce the greenhouse gas (GHG) emissions, China and the US are the two major countries responsible for more than half of the anthropogenic GHG emissions in the world, but failed to sign the Kyoto Protocol, the only binding international treaty aiming to address the issue of climate change. As the world’s factory, China has consumed the most energy in the world³. Around 70% of China’s energy supply is from coal, and half of the energy supply goes to the power sector while the remaining half of the energy supply goes to the industry. At ports in Canada, Australia, Indonesia, Colombia and South Africa, ships are lining up to load coal for furnaces in China, which has evolved virtually overnight from a coal exporter to one of the world’s leading purchasers⁴. Not surprisingly, following the prosperity in its economy, China emitted the most greenhouse gas (GHG) since 2007. Meanwhile, China’s GDP growth rate runs at 7%-10% annually from 2000. With such rapidly growing economic development as the leading developing country, China plays an indispensable role both in the international trade negotiation and international environmental cooperation.

To support its economy, authorities in China have made the policy to build more large scale coal-fired power plants integrated with other industries. Though China

government won the war on the renewable energy investment in 2009 by investing more capitals than the US government⁵, it did not let go of the coal. Instead, China is implementing a policy that promotes together the clean coal and renewable energy to satisfy vastly emerging energy demands. Coal is the most abundant and cheap fuel in China, as its reserves account for 14% of the world total, trailing only Russia and the U.S. Accordingly, to use coal for the purpose of energy security and economic development is clear and encouraging in China's 11th Five-Year Plan for the year 2006-2010, as well as the proposal for the 12th Five-Year Plan for the year 2011-2015.

However, coal is also the dirtiest and most plentiful energy source on Earth. It is the leading source of the global warming pollution. So how does China commit on voluntary carbon reduction action as it mentioned at the Copenhagen summit, while it builds two coal-fired power stations every week⁶? Actually the only feasible way is to adopt the clean coal policy and deploy the technology such as the carbon capture and sequestration (CCS). Its high potential to co-exist with the current infrastructures is its great advantage. Not only jurisdictions depending heavily on domestic coal see the CCS as essential to combat climate change, others not heavily relying on domestic coal also move towards CCS by developing relevant regulatory frameworks. Up to today, there are at least 17 government organizations making progress and finalizing roadmaps for CCS, while many others are interested in participation. Among these jurisdictions, China and the US are the two avid members eager to invest and cooperate together on the deployment of CCS technology. In November 2009, the two Presidents of China and the US established the US-China Clean Energy Research Center funded by public and private funding for at least \$150 million over five years, and the mission is to focus on clean technology such as the CCS technology. Further, the 21st

century coal program will bring scientists and engineers from both countries to work together on large scale CCS projects. There is a clear path that the U.S. and China will strengthen their cooperation in the CCS technology more than ever.

CCS can make the coal-fired power plant cleaner by capturing the carbon emission from the stack before it was emitted into the atmosphere. Then the captured carbon would be stored underground for millions of years. The benefit in doing this is to decrease the amount of carbon emission in the atmosphere and therefore relieve the climate change, while the disadvantage is the jeopardy of leakage, contamination of underground water, and the uncertain long term storage liability allocation.

Some people argue, the risk to deploy the CCS is even greater than the risk from the global warming. While others consider that the CCS technology, as well as nucleus power station and the deep water oil drilling, is worth trying as long as there is adequate risk assessment and risk management. If we use the CCS properly and carefully, it could be a significant technique to help us combating climate change. Nevertheless, there is no doubt that it could be even more harmful to our environment if we cannot implement an efficient risk management strategy.

In this paper, we hold a positive attitude to the deployment of the clean coal technology as the CCS in China, and we think it is necessary for many developing and developed countries to promote the technology. As an application of the precautionary principle to avoid irreversible damage as global warming, we consider the CCS to be a valid approach toward a low carbon economy. However, the precautionary principle, which

requires the policy to be made before any actual risk has occurred, is simultaneously applicable to the risk brought by the deployment of the CCS, such as the jeopardy of leakage, contamination of underground water, and the uncertain long term storage liability sharing. These long term risks are severe and irreversible to our environment, if there is any. While the precautionary principle requires that any measure taken be “cost-effective,” it is essential to balance the pros and the cons between the benefit and the cost, so we could choose between different approaches. Furthermore, based on the *1992 Rio Declaration*, we must consider if there is any alternative that would achieve a similar result, while it could result in the least harm. Last, the *1992 Rio Declaration* also requires any measure taken to be according to each country’s capability. While each country has a different ability and willingness to reduce the carbon emission, the spirit of “common but differentiated responsibilities” was well set out in the Kyoto Protocol. Thus we must ask, is China truly capable of adopting the CCS technology for its major low carbon strategy? We need to examine these questions as we ponder the value and the limitations of the precautionary principle, the most important rule to deal with concerning international environmental issues.